

## **ABSTRACT**

A magnetic field modulation system for a cochlear implant: The magnetic field modulation system receives audible tones and processes the tones into radio frequency signals that are received by a radio frequency coil system. The radio frequency coil system has a transmitting coil and a receiving coil wound in a plurality of configurations. The transmitting coil is implanted in the ear canal wherein it receives processed radio frequency signals. The receiving coil is implanted into the middle ear wherein it receives the radio frequency signals from the transmitting coil. The receiving coil is hermetically sealed inside an enclosure wherein it receives and demodulates the radio frequency signal. Audio electrical signals are extracted from the demodulated radio frequency signal and delivered to the cochlea via an electrode. The audio electrical signals are received by the human brain via the nerves from the cochlea.